

LISTING OF CLAIMS

1. (Currently Amended) A process for forming at least one portion of a compound material formed from elements of an initial material and of a metal within an electronic circuit, comprising the following steps:

(a) formation of a cavity that includes at least one opening onto an access surface and has an internal wall having at least one region of initial material, wherein the cavity comprises a cylindrical or parallelepipedal first volume open to the access surface, and wherein the cavity furthermore comprises a second volume into which the first volume runs on an opposite side from the access surface, the second volume extending laterally away from the first volume in a direction parallel to the access surface;

(b) deposition of the metal close to said region of initial material;

(c) heating of the circuit so as to form a portion of compound material in said region of initial material; and

(d) removal of at least one portion of the metal that has not formed some of the compound material from the cavity via said opening.

2. (Original) The process according to Claim 1, wherein step (a) comprises the removal of at least one material from the circuit.

3. (Currently Amended) The process according to Claim 1, wherein step (a) comprises the transfer of at least one material from association with a temporary substrate to association with a final substrate carrying the electronic circuit.

4. (Original) The process according to Claim 1, wherein the initial material comprises silicon, germanium, arsenic, selenium, or a mixed compound comprising at least one of the above elements.

5. (Original) The process according to Claim 1, wherein step (b) comprises introducing the metal into the cavity via the opening so as to form a deposition of the metal on at least said region of initial material.

6. (Original) The process according to Claim 1, wherein step (b) comprises depositing the metal outside the cavity close to said opening and wherein, during step (c), the metal diffuses into the cavity, via said opening of the cavity, as far as said region of initial material, so as to form a portion of the compound material in said region of initial material.

7. (Original) The process according to Claim 1, wherein step (b) comprises a chemical deposition of the metal from gaseous precursor compounds incorporating atoms of the metal, or a deposition using a liquid solution introduced into the cavity and incorporating dissolved chemical compounds based on the metal in an oxidized form.

8. (Previously Presented) The process according to Claim 1, wherein the metal comprises cobalt, tantalum, tungsten, titanium, aluminum, copper, silver, platinum, nickel or an alloy comprising at least one of the above metals.

9. (Original) The process according to Claim 1, wherein the compound material formed is electrically conducting.

10. (Original) The process according to Claim 1, wherein step (d) comprises an etching by means of a solution including chemical reactants.

11. (Original) The process according to Claim 1, wherein, during step (c), substantially all the initial material present in said region of initial material is converted into compound material.

12. (Original) The process according to Claim 1, wherein the internal wall of the cavity has at least two regions of initial material separated by an intermediate region of a material other than the initial material and wherein, during step (c), the initial material of at least one of said regions of initial material is made to diffuse into the metal so as to form a portion of compound material connecting said regions of initial material.

13. (Original) The process according to Claim 1, wherein the internal wall of the cavity has a region of silica or of silicon nitride.

Claims 14-16. (Canceled).

17. (Previously Presented) The process according to Claim 1, wherein the portion of compound material comprises at least one electrical connection of the electronic circuit.

18. (Previously Presented) The process according to Claim 1, wherein the portion of compound material comprises a gate of an MOS transistor.

19. (Previously Presented) The process according to Claim 18, wherein the compound material has a work function within a range of $\pm 25\%$ around a mean value of two work functions of a p-type semiconductor material and an n-type semiconductor material, respectively.

Claims 20-32. (Canceled).

33. (Withdrawn – Currently Amended) A process for forming at least one portion of a compound material formed from elements of an initial material and of a metal within an electronic circuit, comprising the steps of:

depositing a temporary material;

forming an initial material structure;

removing the temporary material from under the initial material structure to define a cavity, wherein the cavity comprises a first volume open to an access surface, and wherein the cavity furthermore comprises a second volume into which the first volume runs on an opposite side from the access surface, the second volume extending laterally away from the first volume in a direction parallel to the access surface and underneath the initial material structure;

depositing a metal on exposed surfaces of the initial material structure and in the cavity;

and

heating to convert the portions of the initial material structure adjacent to deposited metal into the compound material.

34. (Withdrawn) The method of claim 33 further including removing the deposited metal which is not converted to the compound material by heating.

35. (Withdrawn) The process according to Claim 33, wherein the initial material structure is made from a semiconductor material selected from the group consisting of silicon, germanium, arsenic, selenium, or a mixed compound comprising at least one of the above elements.

36. (Withdrawn) The process according to Claim 33, wherein depositing comprises introducing the metal into the cavity via an opening so as to form a deposition of the metal on at least said initial material structure.

37. (Withdrawn) The process according to Claim 36, wherein depositing comprises depositing the metal outside the cavity close to said opening and wherein, during heating, the metal diffuses into the cavity, via said opening of the cavity, as far as the initial material structure, so as to form a portion of the compound material.

38. (Withdrawn) The process according to Claim 33, wherein depositing comprises a chemical deposition of the metal from gaseous precursor compounds incorporating atoms of the metal.

39. (Withdrawn) The process according to Claim 33, wherein depositing comprises a deposition using a liquid solution introduced into the cavity and incorporating dissolved chemical compounds based on the metal in an oxidized form.

40. (Withdrawn) The process according to Claim 33, wherein the metal is selected from the group consisting of cobalt, tantalum, tungsten, titanium, aluminum, copper, silver, platinum, nickel or an alloy comprising at least one of the above metals.

41. (Withdrawn) The process according to Claim 33, wherein an internal wall of the cavity has a region of silica or of silicon nitride.

42. (Withdrawn – Currently Amended) The process according to Claim 33, wherein the first volume of the cavity comprises a cylindrical or parallelepipedal ~~first~~ volume open to the ~~an~~ access surface and the second volume exposes an underside of the initial material structure.

43. (Withdrawn – Currently Amended) The process according to Claim ~~33~~ 42, wherein the second volume of the cavity exposes an underside surface of the initial material structure, the metal being deposited on the underside surface ~~furthermore comprises a second volume into which the first volume runs, the second volume extending further than the first volume parallel to the access surface.~~

44. (Canceled).

45. (New) The process according to Claim 1, wherein the compound material is formed in the second volume of the cavity.

46. (New) The process according to Claim 1, wherein the second volume underlies and is wider than the first volume in a plane parallel to the access surface.